

**WEST**☐ Generate Collection

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L3: Entry 2 of 7

File: DWPI

Feb 7, 2002

DERWENT-ACC-NO: 2002-339265

DERWENT-WEEK: 200237

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TITLE: Golf ball, comprises nanocomposite material comprising polymer having structure in which inorganic particles are reacted and evenly dispersed

INVENTOR: KIM, C J; KIM, H J

PRIORITY-DATA: 2000US-0627591 (July 28, 2000)

PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

WO 200209823 A1

February 7, 2002

E

023

A63B037/06

INT-CL (IPC): A63 B 37/06

ABSTRACTED-PUB-NO: WO 200209823A

BASIC-ABSTRACT:

NOVELTY - A golf ball comprises nanocomposite material comprising polymer having a structure in which inorganic particles are reacted and evenly dispersed. Each particle has largest dimension of at least at most 1  $\mu$ m greater than particle's smallest dimension.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for making a golf ball composition comprising blending a nanocomposite material and/or nanofiller composition into the composition.

USE - As golf ball.

ADVANTAGE - The nanocomposite and/or nanofiller materials optimize performance properties of the golf ball, and provide greater flexibility to it. They are easily melt, and reduces mold wear. They improve barrier properties of the golf ball, thus preventing moisture from entering the ball. Thus, the inventive golf ball has low cover hardness, high shear resistance, high spin rate, good feel, and good distance performance than the conventional golf ball.

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L5: Entry 14 of 33

File: DWPI

Aug 26, 1986

DERWENT-ACC-NO: 1986-262558

DERWENT-WEEK: 198640

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TITLE: Compsn. for golf balls of improved flight characteristics - comprises urethane!-acrylate!, silicate, metal cpd., alkyl peroxide and polybutadien e

PRIORITY-DATA: 1985JP-0030463 (February 20, 1985)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 61191370 A	August 26, 1986		008	
JP 90024150 B	May 28, 1990		000	

INT-CL (IPC): A63B 37/06; C08F 299/00; C08K 3/36; C08L 9/00

ABSTRACTED-PUB-NO: JP61191370A

## BASIC-ABSTRACT:

Compsn. consists of 5-50 pts.wt. urethane acrylate, 5-50 pts.wt. silicate cpd., 10-60 pts.wt. metal cpd., and 1-5 pts.wt. alkyl peroxide per 100 pts.wt. base rubber contg. polybutadiene having above 40% cis 1,4-structure. The total amt. of urethane acrylate and silicate cpd. is 20-100 pts.wt.

Urethane acrylate is a urethane cpd. contg. (meth)acrylate gp. obtd. by reacting (a) isocyanate, or (b) isocyanate prepolymer, with (c) di- or poly (meth)acrylate having OH gps. Suitable (a) is tolylene diisocyanate contg. 80% 2,4-isomer and 20% 2,6-isomer, or 65% 2,4-isomer and 35% 2,6-isomer, or contg. 100% 2,4-isomer. 4,4'-diphenylmethane diisocyanate, etc. Suitable (b) is a prepolymer having terminal isocyanate gps. obtd. by reaction of a polyol such as glycol, triol, or tetrol, etc. or polyether diol, polyether triol, polyester diol, etc. having a mol.wt. below 2000 with di- or tri-isocyanate.

Suitable (c) is obtd. by reaction of (meth)-acrylic acid, or their deriv. with a polyhydric alcohol or with a cpd. having epoxy gp(s). such as ethylene glycol mono(meth)acrylate, 1,6-hexanediol mono-(meth)acrylate, glycerine bis(meth)acrylate, pentaerythritol tris(meth)acrylate, etc. Suitable polyol of mol.wt. below 2000 is polytetramethylene ether glycol, polyethylene adipate glycol, polyoxypropylene glycol, etc. Suitable silicate is anhydrous silica (e.g., "Aerosil" (RTM); hydrous silicate (e.g., "Carplex IRTM); calcium silicate, e.g., "Silton R 30" (RTM); aluminium silicate, e.g., "Zeolex 23" (RTM), etc. Metal cpd. is Li, Na, K, Cs, Ag, H, Cu (I,II), etc.. Most pref. is oxide, e.g. ZnO. Alkyl peroxide is dicumyl peroxide. Amt. of urethane acrylate is 5-50, pref. 10-40 pts.wt.

A mixt. of the rubber compsn. is kneaded and then formed integrally by vulcanising under pressure to prepare a core, which is then covered with balata, polyurethane, nylon, or ionomer.

ADVANTAGE - Golf ball has excellent resilience, durability and hardness.

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L4: Entry 39 of 55

File: DWPI

Jul 7, 1987

DERWENT-ACC-NO: 1987-226425

DERWENT-WEEK: 198732

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TITLE: High resilience golf ball - with core of compsn. contg. polybutadiene, zinc acrylate and white carbon

PRIORITY-DATA: 1985JP-0290468 (December 25, 1985)

PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

JP 62152484 A

July 7, 1987

004

INT-CL (IPC): A63B 37/06; C08K 3/36; C08K 5/09; C08K 13/02; C08L 9/00

ABSTRACTED-PUB-NO: JP62152484A

BASIC-ABSTRACT:

Golf ball has a core formed of a rubber compsn. consisting of 100 pts. wt. polybutadiene having at least 100% cis 1,4-bond, 5-10 pts. wt. zinc acrylate, and 5-40 pts. wt. white carbon of grain size 60 microns or less and water content 4% or less, together with a filler, e.g. zinc white, etc. as needed. The rubber compsn. is usually vulcanised by using an organic peroxide, etc. The amt. of Zn acrylate added is based on acrylic acid.

ADVANTAGE - The golf ball has a wide range of compression, high resilience (or flying characteristics), and good durability.

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L4: Entry 28 of 55

File: DWPI

Feb 12, 1992

DERWENT-ACC-NO: 1992-100067

DERWENT-WEEK: 199213

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TITLE: Thread rubber for golf ball - comprises inorganic powders covering surface of rubber, including vulcanisation agent and accelerator, giving good initial velocity and durability

PRIORITY-DATA: 1990JP-0144566 (June 4, 1990)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 04041731 A	February 12, 1992		004	

INT-CL (IPC): A63B 37/00; D02G 3/32; D06M 11/00; D06M 23/08; D06M 101/00

ABSTRACTED-PUB-NO: JP04041731A

## BASIC-ABSTRACT:

Thread rubber for a thread wound golf ball comprises inorganic powders at 0.1-30 micron dia. of powder, on the surface of thread rubber, where the covering amt. of the powder is less than 5.0 pts. wt. to 100 pts. wt. of thread rubber.

The thread rubber comprises usual rubber material blended vulcanising agent, vulcanisation accelerator, and other extender to a natural rubber and/or synthetic isoprene rubber.

The vulcanisation accelerator includes a thiazole type accelerator, e.g., 2-mercaptobenzthiazole, imidazoline type accelerator, e.g., 2-mercaptoimidazoline, thiuram type accelerator, e.g., tetramethyl thiuram monosulphide, dithiocarbamate type accelerator, e.g., sodium dithiocarbamate. The age register include hindered phenol and sulphur antioxidant. The inorganic powder is, e.g., talc, calcium carbonate, and magnesium carbonate.

USE/ADVANTAGE - For thread wound golf ball with excellent initial speed efficiency and durability.

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L4: Entry 9 of 55

File: DWPI

Sep 14, 1999

DERWENT-ACC-NO: 1999-564797

DERWENT-WEEK: 200001

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TITLE: Multi-layered core of golf ball - includes rubber or resin as base material  
having polybutadiene as main ingredient

PRIORITY-DATA: 1998JP-0073543 (March 6, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE
JP 11244419 A	September 14, 1999

LANGUAGE

PAGES

MAIN-IPC

008

A63B037/00

INT-CL (IPC): A63 B 37/00; A63 B 37/04

ABSTRACTED-PUB-NO: JP 11244419A

BASIC-ABSTRACT:

NOVELTY - The base material contains rubber or resin having polybutadiene as the principal ingredient and different particles e.g. Fe and Ni having diameter of 0.1-300 micron is chosen.

USE - For golf ball.

ADVANTAGE - As innermost layer having high hardness and the outermost layer having softness and hence it is best for slow and medium speed.

DESCRIPTION OF DRAWING(S) - The figure shows the cross- sectional view of multi-layered core of golf ball.

## WEST Search History

DATE: Friday, October 11, 2002

### Set Name Query

side by side

### Hit Count Set Name

result set

*DB=DWPI; PLUR=YES; OP=OR*

L5	11 and (silica or hisil\$ or hi adj sil)	33	L5
L4	L1 and (micro or micron or microns)	55	L4
L3	L1 and (nm or nano\$)	7	L3
L2	L1 and (nano\$ or micro\$)	81	L2
L1	((a63b037/\$)!.IPC.)	2452	L1

END OF SEARCH HISTORY

## WEST Search History

DATE: Friday, October 11, 2002

### Set Name Query

side by side

### Hit Count Set Name

result set

*DB=USPT; PLUR=YES; OP=OR*

L8	l1 and nano\$	33	L8
L7	L6 and l1	0	L7
L6	zno with (size\$ or diameter\$ or dia or diam)	825	L6
L5	zn0 with (micron\$ or nm)	4	L5
L4	l1 and l2	0	L4
L3	L2 and l1	0	L3
L2	zno with (micron\$ or nm)	519	L2
L1	golf\$[ab]	9088	L1

END OF SEARCH HISTORY

L Number	Hits	Search Text	DB	Time stamp
1	415	((473/356) or (473/357) or (473/358) or (473/359) or (473/360) or (473/361) or (473/362) or (473/363) or (473/365) or (473/366)).CCLS.	USPAT; US-PGPUB	2002/10/11 15:18
2	198	((473/356) or (473/357) or (473/358) or (473/359) or (473/360) or (473/361) or (473/362) or (473/363) or (473/365) or (473/366)).CCLS.) and polybutadiene\$	USPAT; US-PGPUB	2002/10/11 15:58
3	1156	524/432	USPAT; US-PGPUB	2002/10/11 15:59
4	2007	((524/432) or (524/493)).CCLS.	USPAT; US-PGPUB	2002/10/11 15:59
5	36	((524/432) or (524/493)).CCLS.) and golf\$	USPAT; US-PGPUB	2002/10/11 16:00



(FILE 'HOME' ENTERED AT 10:35:02 ON 04 APR 2003)

FILE 'CA' ENTERED AT 10:35:08 ON 04 APR 2003  
0 S JP10043330/PN

L1

FILE 'REGISTRY' ENTERED AT 10:35:34 ON 04 APR 2003  
1 S 9003-17-2/RN

L2

FILE 'CA' ENTERED AT 10:35:52 ON 04 APR 2003

L3

414 S SOLVENT(W)BLEND?

L4

29 S SOLUTION(W)BLEND?

L5

6 S L2 AND (L3 OR L4)

L6

407 S L2 AND (SOLVENT? OR SOLUTION?) AND BLEND?

L7

401 S L6 NOT L5

L8

42 S L7 AND C08J?/IC

L9

92 S L7 AND C08L?/IC

L10

174 S GOLF? AND C08J?/IC

L11

0 S GOLF? AND (L3 OR L4) NOT L5

L12

67 S GOLF? AND TRANS NOT L10